removing an oxide film from a surface of said semiconductor film by etching after said irradiation of said laser light; and

leveling said surface of said semiconductor film by heating after removing said oxide film.

Please add the following new claims 36-54 as follows:

--36. A method of manufacturing a semiconductor device comprising the steps of:

forming a semiconductor film comprising silicon over a substrate;

providing said semiconductor film with a catalytic element for facilitating a crystallization of said semiconductor film;

irradiating said semiconductor film with laser light in air for crystallizing said semiconductor film after providing said catalytic element;

removing an oxide film from a surface of said semiconductor film by etching after said irradiation of said laser light; and

leveling said surface of said semiconductor film by heating in a reducing atmosphere after removing said oxide film.

37. A method of manufacturing a semiconductor device comprising the steps of:

forming a semiconductor film comprising silicon over a substrate;

providing said semiconductor film with a catalytic element for facilitating a crystallization of said semiconductor film;

irradiating said semiconductor film with laser light in air for crystallizing said semiconductor film after providing said catalytic element;

removing an oxide film from a surface of said semiconductor film by etching after said irradiation of said laser light; and

leveling said surface of said semiconductor film by heating in an inert gas after removing said oxide film.

38. A method of manufacturing a semiconductor device comprising the steps of:

forming a semiconductor film comprising silicon over a substrate;

providing said semiconductor film with a catalytic element for facilitating a crystallization of said semiconductor film;

irradiating said semiconductor film with laser light in air for crystallizing said semiconductor film after providing said catalytic element;

removing an oxide film from a surface of said semiconductor film by etching after said irradiation of said laser light; and

leveling said surface of said semiconductor film by heating in an atmosphere after removing said oxide film, a concentration of oxygen or a oxygen compound contained in said atmosphere is 10 ppm or less.

39. A method of manufacturing a semiconductor device comprising the steps of:

forming a semiconductor film comprising silicon over a substrate;

providing said semiconductor film with a catalytic element for facilitating a crystallization of said semiconductor film;

irradiating said semiconductor film with laser light in air for crystallizing said semiconductor film after providing said catalytic element;

removing an oxide film from a surface of said semiconductor film by etching after said irradiation of said laser light; and

leveling said surface of said semiconductor film by heating in a reducing atmosphere after removing said oxide film, a concentration of oxygen or a oxygen compound contained in said reducing atmosphere is 10 ppm or less.

40. A method of manufacturing a semiconductor device comprising the steps of:

forming a semiconductor film comprising silicon over a substrate;

providing said semiconductor film with a catalytic element for facilitating a crystallization of said semiconductor film;

irradiating said semiconductor film with laser light in air for crystallizing said semiconductor film after providing said catalytic element;

removing an oxide film from a surface of said semiconductor film by etching after said irradiation of said laser light; and

leveling said surface of said semiconductor film by heating in an inert gas after removing said oxide film, a concentration of oxygen or a oxygen compound contained in said inert gas is 10 ppm or less.

41. A method of manufacturing a semiconductor device comprising the steps of:

forming a semiconductor film comprising silicon over a substrate;

providing said semiconductor film with a catalytic element for facilitating a crystallization of said semiconductor film;

irradiating said semiconductor film with laser light in air for crystallizing said semiconductor film after providing said catalytic element;

treating a surface of said semiconductor film with a hydrofluoric acid after said irradiation of said laser light; and

leveling said surface of said semiconductor film by heating after said treatment with said hydrofluoric acid.

42. A method of manufacturing a semiconductor device comprising the steps of:

forming a semiconductor film comprising silicon over a substrate;

providing said semiconductor film with a catalytic element for facilitating a crystallization of said semiconductor film;

irradiating said semiconductor film with laser light in air for crystallizing said semiconductor film after providing said catalytic element;

treating a surface of said semiconductor film with a hydrofluoric acid after said irradiation of said laser light; and

leveling said surface of said semiconductor film by heating after said treatment with said hydrofluoric acid in a reducing atmosphere.

43. A method of manufacturing a semiconductor device comprising the steps of:

forming a semiconductor film comprising silicon over a substrate;

providing said semiconductor film with a catalytic element for facilitating a crystallization of said semiconductor film;

irradiating said semiconductor film with laser light in air for crystallizing said semiconductor film after providing said catalytic element;

treating a surface of said semiconductor film with a hydrofluoric acid after said irradiation of said laser light; and

leveling said surface of said semiconductor film by heating after said treatment with said hydrofluoric acid in an inert gas.

44. A method of manufacturing a semiconductor device comprising the steps of:

forming a semiconductor film comprising silicon over a substrate;

providing said semiconductor film with a catalytic element for facilitating a crystallization of said semiconductor film;

irradiating said semiconductor film with laser light in air for crystallizing said semiconductor film after providing said catalytic element;

treating a surface of said semiconductor film with a hydrofluoric acid after said irradiation of said laser light; and

leveling said surface of said semiconductor film by heating after said treatment with said hydrofluoric acid in an atmosphere, a concentration of oxygen or a oxygen compound contained in said atmosphere is 10 ppm or less.

45. A method of manufacturing a semiconductor device comprising the steps of:

forming a semiconductor film comprising silicon over a substrate;

providing said semiconductor film with a catalytic element for facilitating a crystallization of said semiconductor film;

irradiating said semiconductor film with laser light in air for crystallizing said semiconductor film after providing said catalytic element;

treating a surface of said semiconductor film with a hydrofluoric acid after said irradiation of said laser light; and

leveling said surface of said semiconductor film by heating after said treatment with said hydrofluoric acid in a reducing atmosphere, a concentration of oxygen or a oxygen compound contained in said reducing atmosphere is 10 ppm or less.

46. A method of manufacturing a semiconductor device comprising the steps of:

forming a semiconductor film comprising silicon over a substrate;

providing said semiconductor film with a catalytic element for facilitating a crystallization of said semiconductor film;

irradiating said semiconductor film with laser light in air for crystallizing said semiconductor film after providing said catalytic element;

treating a surface of said semiconductor film with a hydrofluoric acid after said irradiation of said laser light; and

leveling said surface of said semiconductor film by heating after said treatment with said hydrofluoric acid in an inert gas, a concentration of oxygen or a oxygen compound contained in said inert gas is 10 ppm or less.

47. A method of manufacturing a semiconductor device comprising the steps of:

forming a semiconductor film comprising silicon over a substrate;

providing said semiconductor film with a catalytic element for facilitating a crystallization of said semiconductor film;

irradiating said semiconductor film with laser light in an atmosphere containing oxygen for crystallizing said semiconductor film after providing said catalytic element;

removing an oxide film from a surface of said semiconductor film by etching after said irradiation of said laser light; and

leveling said surface of said semiconductor film by heating in an atmosphere after removing said oxide film, a concentration of oxygen or a oxygen compound contained in said atmosphere is 10 ppm or less.

48. A method of manufacturing a semiconductor device comprising the steps of:

forming a semiconductor film comprising silicon over a substrate;

providing said semiconductor film with a catalytic element for facilitating a crystallization of said semiconductor film;

irradiating said semiconductor film with laser light in an atmosphere containing oxygen for crystallizing said semiconductor film after providing said catalytic element;

treating a surface of said semiconductor film with a hydrofluoric acid after said irradiation of said laser light; and

leveling said surface of said semiconductor film by heating after said treatment with said hydrofluoric acid in an atmosphere, a concentration of oxygen or a oxygen compound contained in said atmosphere is 10 ppm or less.